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(71) Applicant: HOTV INC. [US/US]; Suite 350, 11455 El Camino Real, San Diego, CA 92130 (US).

(72) Inventors: SHASTRI, Vijnan; 12664 Torrey Bluff Drive #216, San Diego, CA 92130 (US). ARYA, Ashwani; 12664 Torrey Bluff Drive #216, San Diego, CA 92130 (US). SAMPATH, Sumanth; 12718 Torrey Bluff Drive #153, San Diego, CA 92130 (US). BHARADWAL, Rinku; 12670 Torrey Bluff Drive #267, San Diego, CA 92130 (US). GUPTA, Parul; 12670 Torrey Bluff Drive #267, San Diego, CA 92130 (US).

(74) Agent: BOYS, Donald, R.; P.O. Box 187, Aromas, CA 95004 (US).

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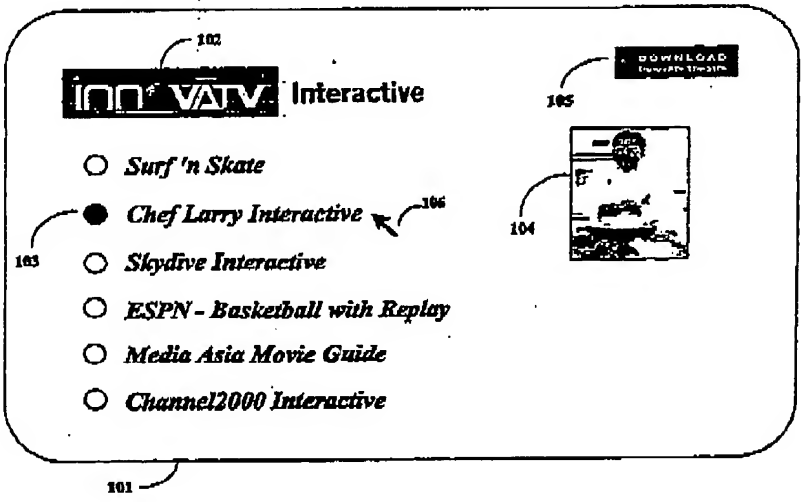
[Continued on next page]

(54) Title: MEDIA-RICH INTERACTIVE VIDEO MAGAZINE



(57) Abstract: A video magazine (101) operates from a network server delivering a magazine (101) to clients having computerized stations including a display apparatus and a backlink mechanism. The client is enabled to select a magazine (101), and through an entry page to select one of several articles or presentations (103) in the magazine (101). In a control and presentation page (103) that the client can control play of a video through interactive thumbnails representing different portions of the video, where there are typically natural scene changes or other transitions in content. Separate windows present additional and related information, and allow the client to jump to other pages and return to the video presentation.

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

Media-Rich Interactive Video Magazine

Field of the Invention

The present invention is in the field of video broadcasting, and pertains more particularly to methods and apparatus for providing users with media-rich video-magazine presentations, wherein the user can select and control the flow of media..

Background of the Invention

With continuing development of new and better ways of delivering television and other video presentations to end users, and parallel development of computerized information systems, such as the Internet and the associated World Wide Web (WWW), there have been concerted efforts to integrate various systems to provide enhanced information delivery and entertainment systems. For example, developers are introducing integrated systems combining TVs with computer subsystems, so a TV may be used as a WEB browser, or a PC may be used for enhanced TV viewing.

In some systems computer elements, such as a CPU, memory, and the like, are built into the familiar chassis of a TV set. In such a system, the TV screen becomes the display monitor in the computer mode. In such a system, conventional TV elements and circuitry are incorporated along with the computer elements, and capability is provided for a user to switch modes, or to view recorded or broadcast video with added computer interaction. One may thus, with a properly equipped system, select to view analog TV programs, digital TV programs, conventional cable TV, satellite TV, pay TV from various sources, and browse the WWW as well, displaying WEB pages and interacting with on-screen fields and relational systems for jumping to related information, databases, and other WEB pages.

The capabilities are often integrated into a single display, that is, one may view a broadcast presentation and also have a window on the display for WEB interaction.

In some other systems, computer elements are provided in an enclosure separate from the TV, often referred to in the art as a set-top box. Set-top box systems have an advantage for providers in that they may be connected to conventional television sets, so end users don't have to buy a new TV along with the computer elements.

In such integrated systems, whether in a single enclosure or as set-top box systems, user input is typically through a hand-held device quite similar to a familiar remote controller, usually having infra-red communication with the set-top box or a receiver in the integrated TV. For computer modes, such as WEB browsing, a cursor is displayed on the TV screen, and cursor manipulation is provided by buttons or other familiar pointer apparatus on the remote. Select buttons are also provided in the remote to perform the familiar function of such buttons on a pointer device, like a mouse or trackball more familiar to computer users.

Set-top boxes and computer-integrated TVs adapted as described above typically have inputs for such as a TV antenna (analog), cable TV (analog or digital), more recently direct-satellite TV (digital), and may also connect to video cassette recorders and to mass storage devices such as hard disk drives and CD-ROM drives to provide a capability for uploading video data from such devices and presenting the dynamic result as a display on the TV screen.

The inventors note that the innovations and developments described above provide enhanced ability to view and interact with video presentations, and that the quality of presentation and efficiency of interaction will be at least partly a function of the computer power provided and the sophistication and range of the hardware and software. In the present invention, as will be seen below, the invention may be practiced with a high-end PC, or with integrated TV/computer systems as described above, with varying degrees of efficiency and quality of presentation.

The present inventors have noted that even with the advances in hardware and software so far introduced in the art, there is still considerable room for improvement, and

the inventors have accordingly provided a unique interactive video presentation system as a contribution to the art.

Summary of the Invention

In a preferred embodiment of the present invention an Interactive Video Magazine system is provided, comprising a server storing video presentations, entry pages, and presentation and control pages for the magazine, and executing video magazine control routines; a client station having a video display terminal and computer circuitry for displaying the video presentations, entry pages, and presentation and control pages for the magazine, and executing client video magazine software; and at least one digital link between the server and the client station for streaming video from the server to the client station and enabling backlink signals from the client station to the server. A user is enabled through the client and server software and the digital link to select a video magazine, to jump to an entry page and to select therein at least one video, and to control the playing of the video through selection of thumbnails representing natural transitions in the video.

In one embodiment selecting a thumbnail causes the video to jump immediately to the portion for which the natural transition is the first frame. There may be also additional windows presenting additional textual information related to the video. The textual information in the additional window changes, in some embodiments, for each portion of the video represented by a thumbnail.

In addition to the above there may a feedback selection opening a window wherein a client may respond to a survey on the magazine presentations. In various embodiments of the invention, taught in enabling detail below, for the first time a media-rich interactive video magazine is provided wherein clients may access information and entertainment presentations which are periodically changed and updated in the nature of a magazine, and may control the order and timing of presentations.

Brief Description of the Drawing Figures

Fig. 1 is a system diagram illustrating an exemplary architecture for practicing the present invention.

Fig. 2 is a first entry page for a video magazine according to an embodiment of the present invention.

Fig. 3 is an second entry page for the video magazine.

Fig. 4 is a presentation and control page for a presentation provided by the video magazine.

Fig. 5 is a feedback page for feedback from clients in the video magazine.

Description of the Preferred Embodiments

According to a preferred embodiment of the present invention, a media-rich video magazine system is provided for education and entertainment of clients of a presentation service. Fig. 1 illustrates an architecture upon which the video-magazine system may be practiced. In Fig. 1 a user's premise 101 has a display 118, which may be a television set with computer integration, and a set top box 102 enabled to receive video streams, in this case, by three different ports. Video may be received at box 102 via cable link 103 from a cable network 104 having a server 105, which may alternately receive video via an Internet connection 106 for rebroadcast from exemplary Internet servers 107, 108 and 109 in Internet cloud 110, the servers loosely connected on Internet backbone 111. In most cases the cable link is a one-way link not providing a backlink to the user to interact with a video presentation served.

Box 102 in this example also has a satellite port 112 connected to a satellite dish 113 for receiving video streams from a satellite network 114 via a satellite 115 to which video stream is uploaded from a server 116 connected by link 117 to Internet cloud 110, and the box may thereby receive video streams via the satellite link as well.

Again, in most conventional cases the satellite link is a one-way link, and no backlink is provided to the user, although the backlink limitation is not inherent.

Box 102 in this embodiment also has a land-line telephony modem connection 119 to an ISP 120 through which the box is connected to Internet 110 via server 121. There are other means by which video streams may be received by a user's station and by which the user may backlink to a sender for interaction with the presentation system. Fig. 1 is meant to illustrate several of the more common. In a simple case, as will be apparent with further disclosure below, a user with a PC may receive a video presentation and interact with that presentation according to an embodiment of the present invention through a single connection, such as a conventional Internet connection. Alternatively separate and disparate paths may be used for presentation to a user and user reaction using any of the alternatives apparent in architecture of Fig. 1, or other architectures.

In a preferred embodiment of the present invention a central server, typically a subscription server, is enabled to store and present a media-rich video magazine according to embodiments of the present invention to multiple clients (users). The subscription server may be any of the servers 107, 108, 109 in Fig. 1, server 121 of ISP 120, server 105 of cable station 104, or server 116 of satellite station 114. For illustration only this narrative will assume the subscription server is server 121 in ISP 120, and that all presentation and interaction is via land-line modem link 119. For this description Video Magazine software (Server software) 122 is illustrated as executing on server 121, and client software 123 is shown as executing on box 102.

The skilled artisan will be aware that the client station can take a number of forms, and there will be many client stations not all of the same form. All client stations, however, must be enabled to execute a client software to practice the invention. The arrangement shown is merely exemplary.

The video magazine made available to clients by server 121 (in this embodiment) has abstract features in common with more conventional hard-copy magazines. For example, in both cases authors compose presentations. In the hardcopy magazine the presentations are articles with pictures, while in the interactive

video magazine of the present invention the presentations are interactive video presentations with client interactivity mechanisms wherein a viewing client may interact with, manage, and control the presentation. The articles in both cases can be of various kinds, such as documentaries or fiction stories. Both kinds of magazine have editors who assign tasks, control direction and content, and put together the various articles as a periodic new edition of the magazine. In both cases there may be *departments* and *letters to the editor* and the like. There are many other similarities.

Fig. 2 is a first page of an edition of an exemplary media-rich Interactive magazine according to an embodiment of the present invention. Window 101 is a display on a display screen at a user's station, such as TV 118 of station 101 (Fig. 1). This first page may be considered analogous in some respects to a *table of contents* for a hardcopy magazine, except this first page has greatly enhanced functionality.

First page 101 has an ID logo 102 identifying this magazine as an edition of Innovatv Interactive magazine. A list of selectable entries 103 comprise the presentations available in the current edition of the magazine. Selection is by moving a cursor 106 to the area of a listing and *clicking on* the area. A *mouseover* changes the color of a bullet at the head of each listing, indicating which presentation is about to be selected. The presentation which is thus highlighted also causes a picture to be displayed in a window 104, the picture being indicative of the presentation. In this example the *Chef Larry Interactive* presentation is highlighted, and a still of Chef Larry is displayed in window 104. A download button 105 is provided in this example enabling a viewer/client to download from the server software for interacting with the server to view magazine presentations. This is, in this embodiment, client software 123 (Fig. 1).

Fig. 2 indicates there are six presentations in the current edition of the magazine, these being, besides Chef Larry Interactive, Surf 'n Skate, Skydive Interactive, ESPN - Basketball with Replay, Media Asia Movie Guide, and Channel2000 Interactive.

Fig. 3 is another view of first page 101 with cursor 106 moved to highlight Channel2000 Interactive, and it is seen that window 104 now has a new picture, this being a picture of a reporter and narrator for Channel2000 Interactive.

When a client selects one or another of the listed presentations shown in Figs. 2 and 3, a backlink signal goes to server 121 (Fig. 1), which responds by serving a new page to the client, this being a control and presentation page dedicated to the particular presentation selected. Fig. 4 is the control and presentation page for Chef Larry Interactive, and is described below in enabling detail as representative of all the other presentations available in the magazine, all of the presentations having similar functionality.

The control and presentation page shown has a logo at the upper left for Chef Larry's Cuisine Club. A video window 201 provides an active video presentation selectable and controllable to a large degree by the viewer/client. The video presentation that will play in this case is one of three selectable from list 204. The three selections are *Rockfish en Papillote*, which shows in detail how to prepare the title dish; *Warm Spring Bean and Red Potato Salad*, which shows in detail how to make the side dishes to accompany the fish main course; and *Serving*, which shows the details of serving the courses properly and elegantly. Again selection is made by moving cursor 106 and using a pointer device input, such as a mouse. In this particular case the Rockfish en Papillote video is selected.

A dynamic time window 208 shows the current position of the video (0:00) and the total time (9:39) for the video. Play pause and stop buttons 207 are provided to enable the client to start, pause, and stop the video. A Stop signal causes the video to go to the start and wait for a Play signal.

In addition to starting, pausing and stopping, a set of thumbnails 202 is provided. Each thumbnail is a frame of the video at a natural scene change or transition point in the video. These may be thought of as Chapter headings in the video presentation. Note that there are eight thumbnails shown, but a scroll bar 203 enables there to be many more than the eight selectable thumbnails shown. No frames

are shown in the thumbnails in Fig. 4 to avoid confusion of too much detail, but in the actual implementation the frames may be seen.

Selecting a thumbnail causes the video presentation to jump to the selected frame, and changes the time window 208 to indicate the time position in the video. Jumps may be from any position in the video to the selected position, and if the video is playing when a jump is made, the video automatically restarts at the jumped-to position. If the video is stopped or paused when a selection is made, the video jumps to the new position and indexes the time window, but waits for a play signal to play the video from the new position. One may thus jump to different related videos and to natural transition position within videos at will.

Window 209 provides additional info and selectable links. The text shown is a general comment for the video. When one selects a link in this window the video, if playing in window 201, goes to pause, and a new window (not shown) opens as a conventional browsing window to the new destination. When one leaves the new destination and closes the browsing window, the video resumes in window 201.

Window 210 provides text information specific to each video segment represented by a thumbnail. A row of buttons 211 across the bottom of window 211 enables a client to select content for this window. *Weblinks* takes the client to related Web sites, and behavior is as described above for jumps to outside Web sites.. *History* accesses events already past in the video. *Recipe* provides a printable recipe for the dishes illustrated and taught in the available videos. *Help* takes the client to a tutorial on how the magazine system works.

Home buttons 206 enable a client to go to one of two selectable *home* destinations. One if the Chef Larry Cuisine Club home page and the other a *RoadRunner* home page, which is an access point for interactive magazines of the kind taught herein, and for other content as well.

A *Feedback* button 205 takes a client to a feedback page shown exemplary in Fig. 5. The feedback page enables a client to answer a series of questions providing valuable feedback to the editors of the media-rich magazine. A scroll bar 501 enables the client to access all of the questions in a feedback list.

Just one of six available presentations in a media-rich Interactive Magazine has been taught herein, but the other five, although the appearance and implementation of interactive controls may differ (different backgrounds, different positions, certainly different video content related to the listed titles) the control and flow is similar. In each case a video window (201) is provided, there are Stop, Pause, and Play controls (207), each video presentation is parsed by thumbnails (202), more than one video on the title subject may be selectable (204), and extra windows with extra information and destinations are provided (209 and 210).

In alternative embodiment of the present invention a number of video magazines, each having plural presentation content and periodically updated to new content (just like a hardcopy magazine) may be made available through a subscription server. Again it is emphasized that the invention may be practiced in a variety of equipment configurations, both at the server and the client end. It will be apparent to the skilled artisan that the appearance of entry pages and the appearance and interface mechanisms of both these and the presentation and control pages may vary widely within the spirit and scope of the invention. The invention should thus be granted broad latitude and be limited only by the claims which follow.

What is claimed is:

1. An Interactive Video Magazine system, comprising:

a server storing video presentations, entry pages, and presentation and control pages for the magazine, and executing video magazine control routines;

a client station having a video display terminal and computer circuitry for displaying the video presentations, entry pages, and presentation and control pages for the magazine, and executing client video magazine software; and

at least one digital link between the server and the client station for streaming video from the server to the client station and enabling backlink signals from the client station to the server;

wherein a user is enabled through the client and server software and the digital link to select a video magazine, to jump to an entry page and to select therein at least one video, and to control the playing of the video through selection of thumbnails representing natural transitions in the video.

2. The system of claim 1 wherein selecting a thumbnail causes the video to jump immediately to the portion for which the natural transition is the first frame.

3. The system of claim 1 further comprising at least one additional window presenting additional textual information related to the video.

4. The system of claim 3 wherein the textual information in the additional window changes for each portion of the video represented by a thumbnail.

5. The system of claim 1 further comprising a feedback selection opening a window wherein a client may respond to a survey on the magazine presentations.

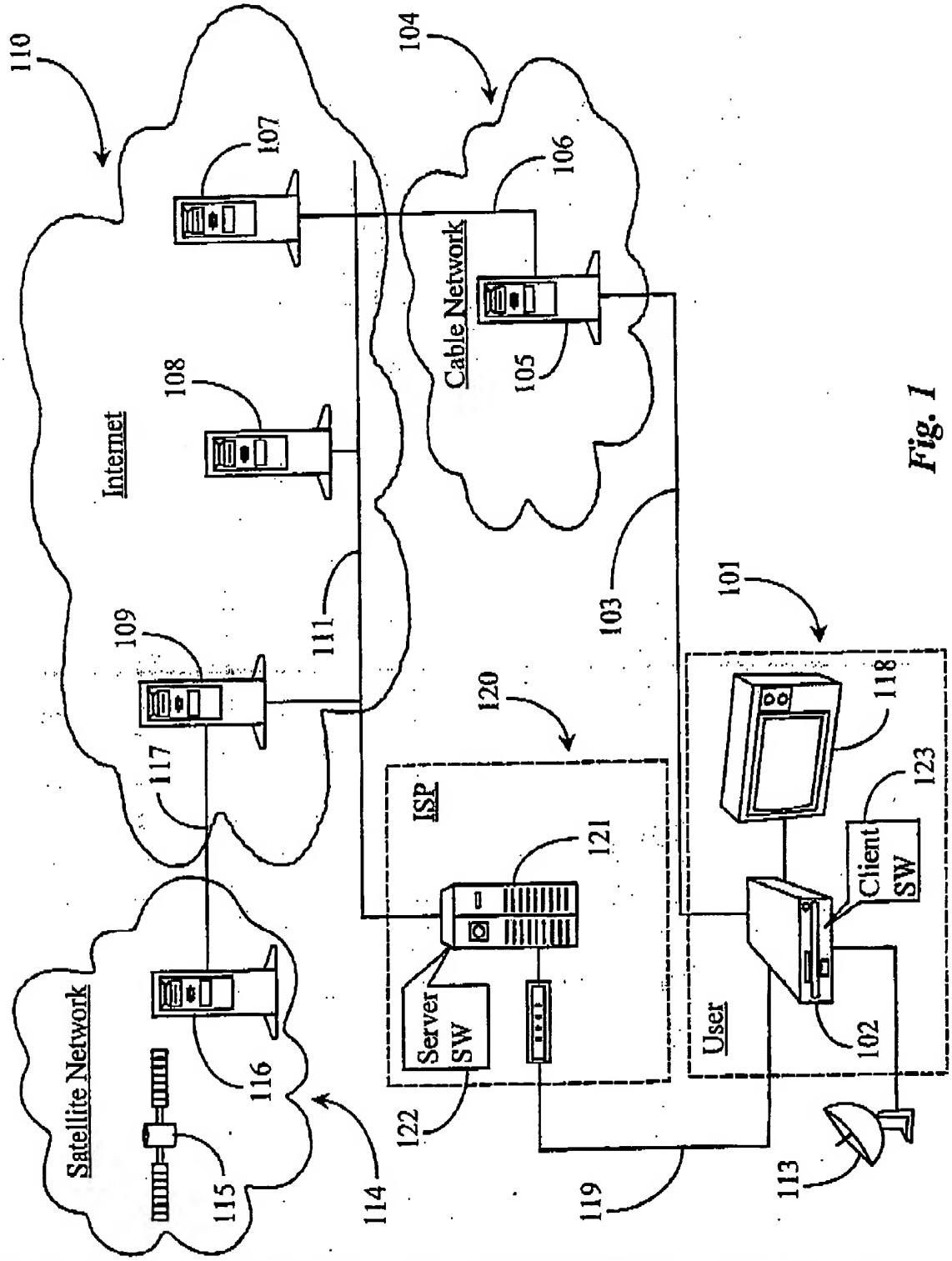

110
104
107
106
Cable Network
105
108
Internet
109
111
103
101
120
118
117
ISP
123
121
Client SW
Server SW
User
102
Satellite Network
116
122
115
114
119
113

Fig. 1

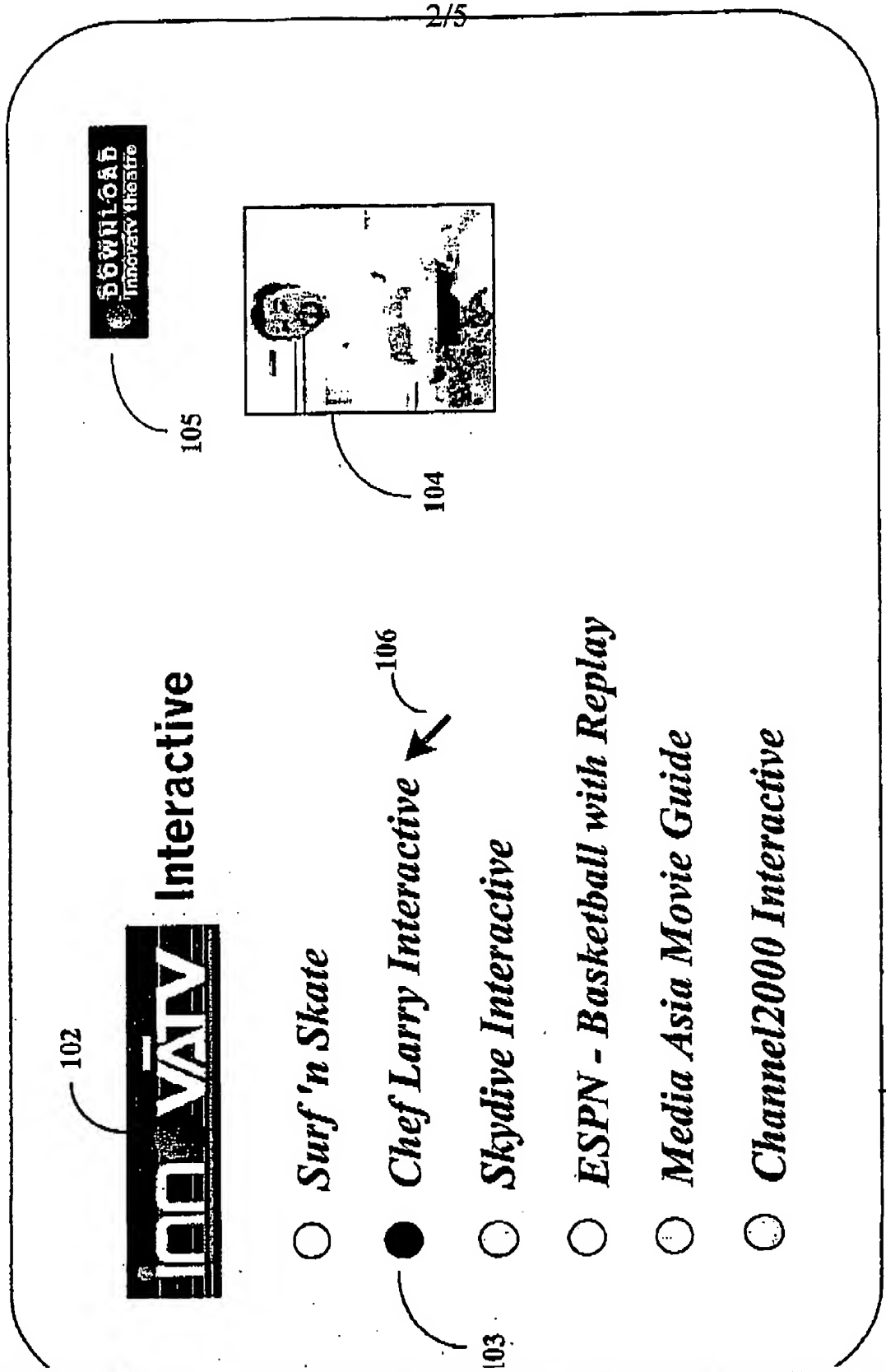

DOWNLOAD
Interactive theatre
105
104
102
Interactive
Surf 'n Skate
Chef Larry Interactive
106
Skydive Interactive
ESPN - Basketball with Replay
Media Asia Movie Guide
Channel2000 Interactive
103
101

Fig. 2

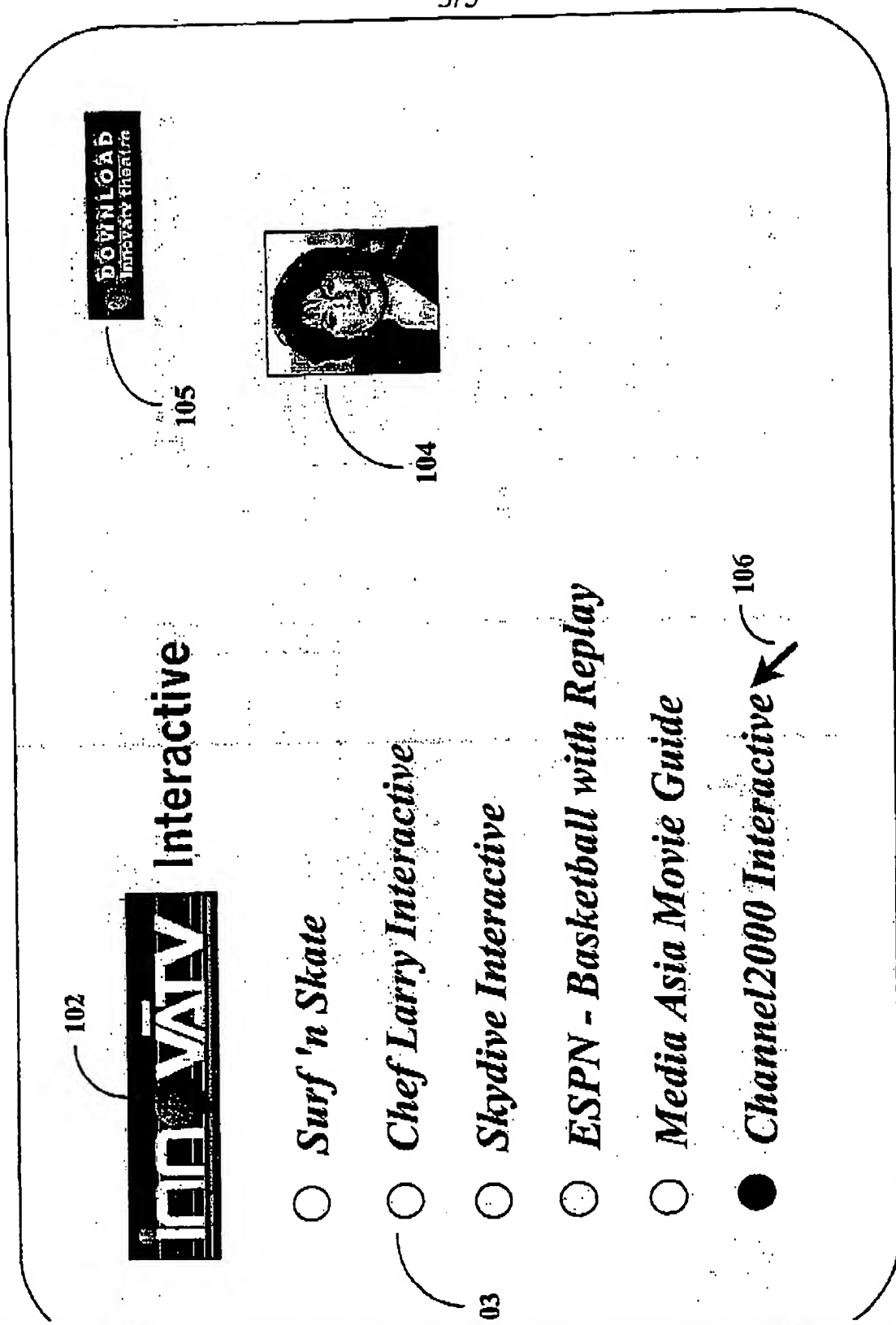

DOWNLOAD
Interactive theatre
105
104
102
Interactive
Surf 'n Skate
Chef Larry Interactive
Skydive Interactive
ESPN - Basketball with Replay
Media Asia Movie Guide
Channel2000 Interactive
106
103
101

Fig. 3

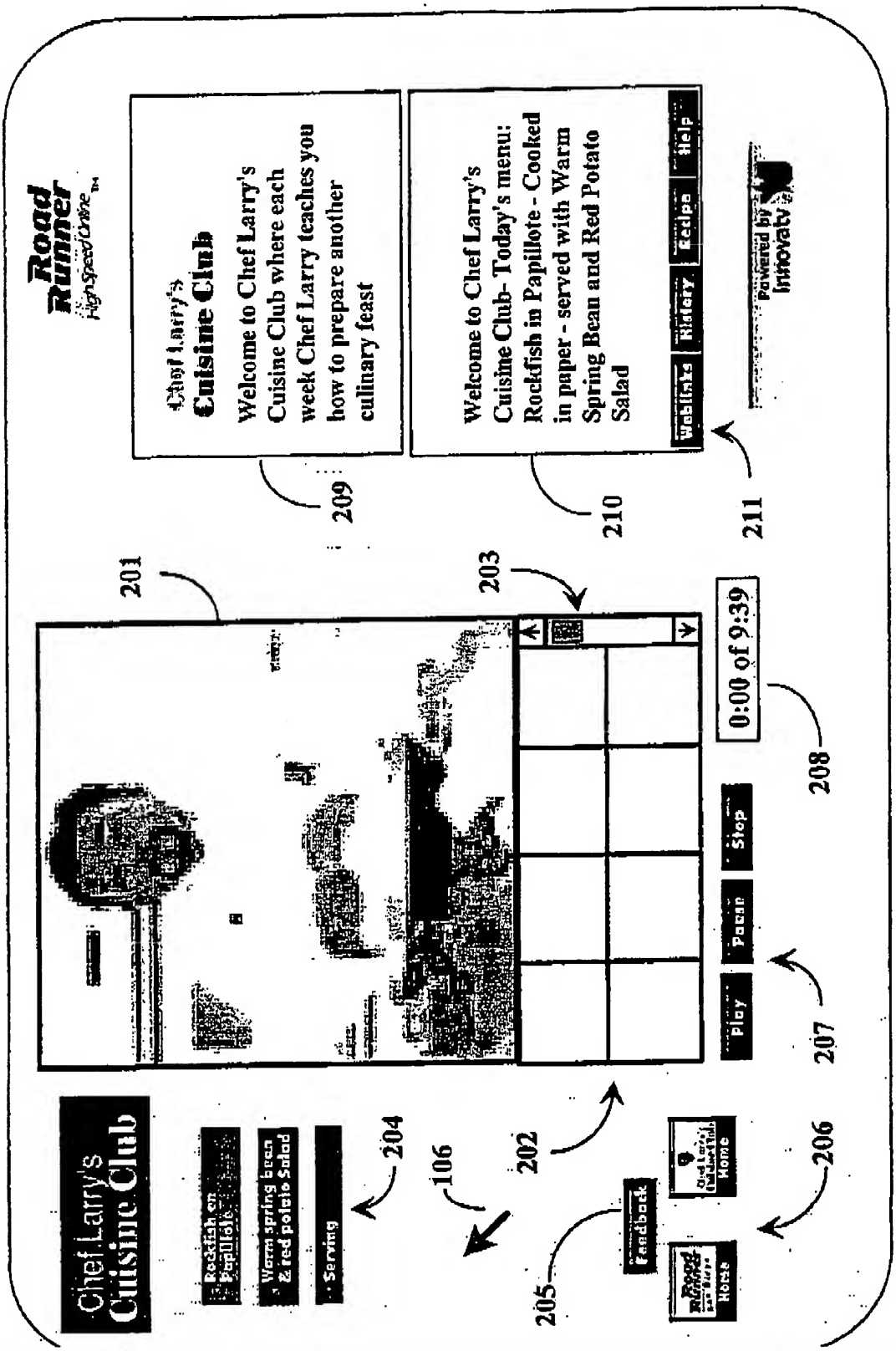

Road Runner
High Speed Online
Chef Larry's Cuisine Club
Welcome to Chef Larry's Cuisine Club where each week Chef Larry teaches you how to prepare another culinary feast
Welcome to Chef Larry's Cuisine Club- Today's menu: Rockfish in Papillote - Cooked in paper - served with Warm Spring Bean and Red Potato Salad
Weblinks
History
Eclipse
Help
Powered by Intovativ
201
203
209
210
211
0:00 of 9:39
208
Play
Pause
Stop
207
Chef Larry's Cuisine Club
Rockfish en Papillote
Warm spring bean & red potato Salad
Serving
204
106
202
206
205
Feedback
Home
Home

Fig. 4

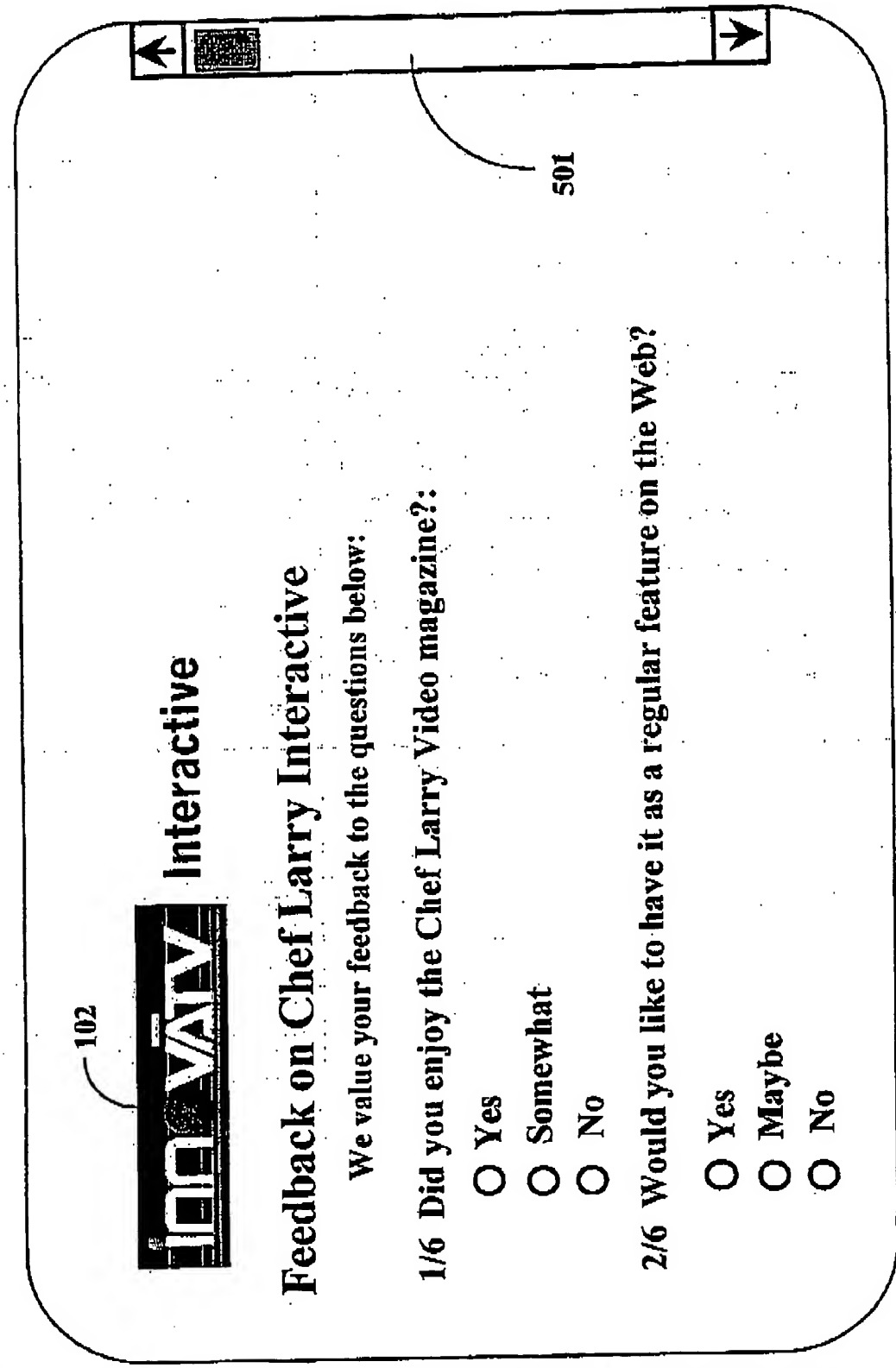

501
102
Interactive
Feedback on Chef Larry Interactive
We value your feedback to the questions below:
1/6 Did you enjoy the Chef Larry Video magazine?:
O Yes
O Somewhat
O No
2/6 Would you like to have it as a regular feature on the Web?
O Yes
O Maybe
O No
501

Fig. 5

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US00/40389

A. CLASSIFICATION OF SUBJECT MATTER
IPC(7) : G06F 15/00
US CL : 707/501, 515; 345/302, 328
According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
U.S. : 707/501, 515; 345/302, 328

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
EAST

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y, P	US 5,957,695 A (REFORD et al) 28 September 1999, column 5, lines 39-67, column 6, lines 1-8, column 8, lines 64-67, column 9, lines 1-67, column 14, lines 12-67.	1-5
Y, P	US 5,911,582 A (REFORD et al) 15 June 1999, column 5, lines 39-67, column 6, lines 1-8, column 8, lines 58-67, column 9, lines 1-67, column 14, lines 12-67.	1-5
Y	US 5,839,905 A (REFORD et al) 24 November 1998, column 5, lines 33-67, column 6, lines 1-2, column 8, lines 55-67, column 9, lines 1-67, column 14, lines 4-67.	1-5
Y	US 5,795,156 A (REFORD et al) 18 August 1998, column 5, lines 33-67, column 6, lines 1-2, column 8, lines 55-67, column 9, lines 1-67, column 14, lines 4-67.	1-5
Y	US 5,788,507 A (REFORD et al) 04 August 1998, column 5, lines 33-67, column 6, lines 1-2, column 8, lines 55-67, column 9, lines 1-67, column 14, lines 12-67.	1-5
Y	US 5,597,307 A (REFORD et al) 28 January 1997, column 5, lines 36-67, column 6, lines 1-5, column 8, lines 60-67, column 9, lines 1-67, column 14, lines 10-67.	1-5
Y	US 5,892,507 A (MOORBY et al) 06 April 1999, column 4, lines 31-67, column 8, lines 9-67.	1-5
Y	US 5,815,194 A (UEDA) 29 September 1998, column 2, lines 50-67, column 3, lines 1-7	1-5

☒ Further documents are listed in the continuation of Box C. ☐ See patent family annex.

* Special categories of cited documents:

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Date of the actual completion of the international search
21 NOVEMBER 2000

Date of mailing of the international search report
02 JAN 2001

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Authorized officer
HEATHER HERNDON Peggy Harrod
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Form PCT/ISA/210 (second sheet) (July 1998)

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US00/40389

C (Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 5,684,963 A (CLEMENT) 04 November 1997, column 2, lines 50-67, column 3, lines 1-67, column 4, lines 1-22.	1-5
Y	LEMAY et al, Creating Commercial Web Pages, Sams.net Pub., 1996, pages 150-151.	5

Form PCT/ISA/210 (continuation of second sheet) (July 1998)